

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

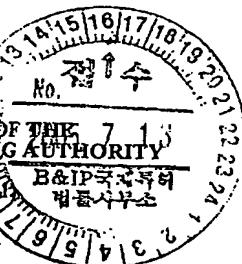
GHILL, Yong-Jun

5th Fl., Christine Bldg., 720-21, Yeoksam 2-dong, Gangnam-gu, Seoul, 135-920 Republic of Korea

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis)

Date of mailing  
(day/month/year) 12 JULY 2005 (12.07.2005)

Applicant's or agent's file reference M04-1027-PCT	FOR FURTHER ACTION See paragraph 2 below	
International application No. <b>PCT/KR2005/000482</b>	International filing date (day/month/year) <b>22 FEBRUARY 2005 (22.02.2005)</b>	Priority date(day/month/year) <b>05 MARCH 2004 (05.03.2004)</b>
International Patent Classification (IPC) or both national classification and IPC <b>IPC7 E21B 3/02</b>		
Applicant <b>YOUN, Eun-Jung</b>		

## 1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer  KIM, DONG KUK  Telephone No. 82-42-481-8144
--	---



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2005/000482

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- a sequence listing  
 table(s) related to the sequence listing

b. format of material

- in written format  
 in computer readable form

c. time of filing/furnishing

- contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.

3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2005/000482

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1-35	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-35	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-35	YES
	Claims	None	NO

**2. Citations and explanations :**

Reference is made to the following documents:

D1: JP 9170246

D2: JP 7018664

D3: US 4480704

**I . Novelty**

The present application relates to a boring system which includes a bit unit for boring the ground, a connecting rod connected with a driving device for transmitting driving force to the bit unit, and a guide unit connected with the connecting rod in a longitudinal direction, the guide unit guiding movement of the bit unit along a guide groove which is formed in a casing inserted into an adjacent boring hole in a longitudinal direction.

D1 relates to a twin auger drive device which is composed of two auger drive devices juxtaposed with each other with a spacer therebetween, having their upper and lower parts coupled together by means of attachments. D2 relates to a rotary joint for an underground boring machine which is constituted of a bearing section lifted or lowered together with a power device section while its rotation is restricted by the power device section of the underground boring machine or a leader mast and a connecting shaft section rotatably inserted and held by the bearing section. D3 relates to a reamer, used in earth boring by the rotary method, which includes a body having a plurality of sockets in its outer periphery. And a roller in the reamer is rotatably mounted on the shaft with the inner periphery of the roller and the outer periphery of the shaft providing bearings for the roller.

D1 through D3 disclose no guide unit guiding movement of the bit unit along a guide groove which is formed in a casing inserted into an adjacent boring hole in the longitudinal direction, which is disclosed in claim 1, 18 and 35 of the present application. Therefore, claim 1 meets the requirement of PCT Article 33(2). Since claims 2 through 17 are dependent on claim 1 and claims 19 through 34 on claim 18, they also meet the requirement of PCT Article 33(2).

**II . Inventive Step**

Claim 1 through 35 features a boring system and method advantageously prevent gap between boring holes when boring a plurality of boring holes in the ground by inserting a casing into an adjacent boring hole with grooved guides. Consequently, the boring system and method of the present application does not require any additional working for filling a gap formed between the adjacent piles in order to preventing water leaks in the underground when forming a wall for blocking soil or water.

None of D1 through D3 disclose the technical features defined in claim 1 through 35. In addition, said technical features would not be obvious to a person skilled in the art. Therefore, claim 1 through 35 meet the requirement of PCT Article 33(3).